Wildland Outdoor Recreation

Outdoor recreation is one of the defining characteristics of California. In addition to the icons such as the "Hollywood" sign and the Golden Gate Bridge, many pictorial views of California include outdoor settings such as the beaches of Southern California, picturesque vineyards of Napa Valley, and the peaks of California's 14,000 foot mountains. For this assessment, the Fire and Resource Assessment Program (FRAP) defines wildland outdoor recreation as the subset of all outdoor recreation that occurs on California's forests and rangelands. Most, but not all of this recreation occurs on public lands. In many cases, services provided by private sector operations are an important complement to these recreational activities. In addition, there are many other outdoor recreational activities that do not require wildlands and are often wholly dependent on private sector services. The sum of all of these activities drives the assessment of locally based recreation, recreation-based businesses, and employment.

Fundamental to understanding recreation status in California are the major trends and characteristics driving recreation in California. Major trends and characteristics include:

- **Population growth:** With the state's population expected to grow from 34 million in 2000 to 45 million by 2020, increases in total use are expected. This is particularity true in California's urban areas where most of the population resides. Other rapidly growing areas include inland areas such as the foothills of the Sierra, the Sacramento and San Joaquin Valleys and inland empire of the southern California such as Riverside and San Bernardino counties.
- **Demographic changes:** Changing age and cultural patterns, including increasing proportion of multi-ethnic Americans and an aging baby boomer population, will drive new demands on recreation resources.
- **Changing patterns of use:** Emerging patterns of use include shorter duration trips and a wider variety of activities such as nature study activities and adventure sports.

To help describe the status and trends in California's wildland outdoor recreation, this report is organized around four major topics:

- profile of wildland recreation users and preferences
- demand for wildland, outdoor recreation: function of population, access, and attractiveness;
- supply of public land open for recreation and private land: ease of access (near population centers roads, trails);
- facilities: public facilities, private facilities and services, recreational businesses, and employment; and
- challenges and issues.

Findings on user preferences and demographic profile of user

A starting point for assessing wildland outdoor recreation is to review the types of outdoor activities in California are associated with wildland settings. Many outdoor recreational activities do not require wildland settings such as walking, sports, boating (California has over one million registered power and sail boats), picnicking, and sightseeing. However, California's diverse wildlands offer unique recreational opportunities that cannot easily be duplicated in urban parks or developed sites. Wildland recreational opportunities have been unique assets of California since the development of an 1852 private park around the large Sequoia trees at what is now Calaveras Big Trees State Park.

Two sources of information provided the profile and preferences of the users of outdoor recreation:

--- In 1995, the USFS, in cooperation with others, completed the National Survey on Recreation and the Environment (NSRE) that addressed the attributes of recreation users. The survey focused on separate activities and reported the relative age, race, and gender of the user. FRAP is acquiring the database that specifically addresses California and will update it with the survey results. Information on the survey can be found at Outdoor Recreation in the United States.

---The second source is the California Department of Parks sand Recreation (DPR) contracted survey in 1997 conducted by CIC Associates. It summarized findings on the preferences of Californian's recreation uses, specifically Hispanic users.

National Survey on Recreation and the Environment

The most recent comprehensive survey of wildland outdoor recreation is the National Survey on Recreation and the Environment (NSRE) that was done for the U.S. Forest Service (USFS) and published in 1995. National use trends from this survey show that 94.5 percent of Americans participated in at least one of the surveyed outdoor recreation activities in 1994-1995. That percentage translates into 189 million participants nationwide. Walking is the single most popular activity, with about 134 million walkers nationwide. Other activities with over 100 million participants include visiting a beach, gathering outdoors with the family, and sightseeing (Cordell et al., 1997). Full information on the NRSE can be found at Outdoor Recreation in the United States.

Results from NSRE show general outdoor activities, which include beach, sightseeing, and picnicking along with other specific activities made up 71 percent of trips away from home in California and were the dominant recreation uses (Table 1) . These may be in wildland settings but in the majority of cases, they are not. Wildland habitat specific activities such as adventure activities, wildlife watching, fishing and others constitute the remaining 29 percent of use (Cordell et al., 1997).

Adventure activities were the most popular wildland activities, doubling wildlife watching and fishing as the other popular wildland activities. Biking and hiking drew 174 million recreational visits combined and were the two most popular wildland activities in California. Also popular were fishing and wildlife viewing (Cordell et al., 1997) (Table 2).

Table 1. Recreation trips away from home taken by individuals at least 16 years old by activity, 1994

Activity*	Trips (millions)	Percentage of total trips	Percentage of wildland trips
Beach	354	25	
Sightseeing	230	17	
Picnicking	176	13	
Power and sail boating	68	5	
Adventure activities	225	16	40
Bird and wildlife watching	119	9	21
Fishing	110	8	20
Camping	47	3	8
Off Highway Vehicles (OHV)	27	2	5
Winter sports	19	1	3
Hunting	14	1	2
Total	1,389	100	100

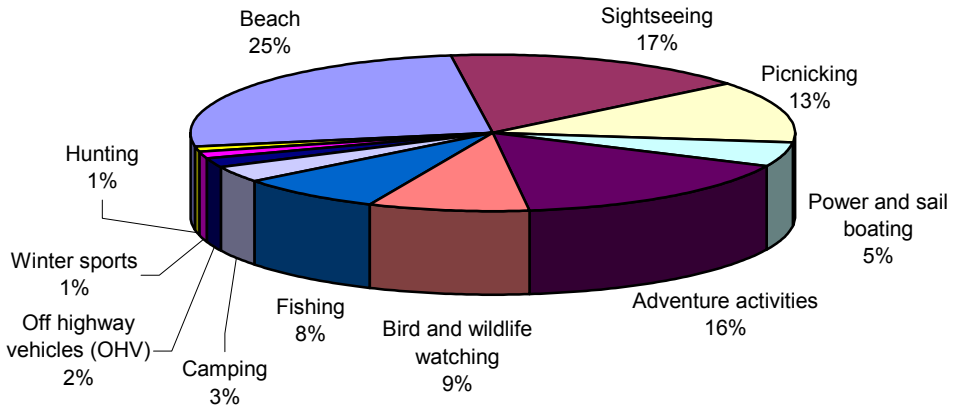
see table 2 for finer detail of activity

Source: Cordell et al., 1997

Water activities and viewing have the greatest participation accounting for over 56 percent of all outdoor recreation activities.

Detailed findings on participation and preferences in outdoor recreational activity for California from the NSRE are shown in Table 2 and Figure 1. Approximately 40 percent of the visits are strongly associated with wildlands. Adventure activities such as hiking, biking, horseback riding, and rock climbing can also be done outside of wildland settings but are well matched with more extensive wildlands. When considering the relative magnitude of the activities, a number of interesting patterns stand out. A key point is that the vast majority of wildland visits (adventure activities, bird watching, and fishing) can typically be done in less than a full day with limited equipment. Only a fraction of the visits are dependent on multi-day visits and large wildland areas (Cordell et al., 1997).

Figure 1. Percentage recreation trips away from home taken by individuals at least 16 years old by activity, 1994



Source: Compiled by FRAP from Cordell et al., 1997

Table 2. Recreation trips away from home taken by individuals at least 16 years old by activity, 1994

Activity	Trips (millions)
Sightseeing	
Visiting a Nature Center	46
Visit a Prehistoric Site	12
Visit a Historic Site	29
Sightseeing	142
Camping	
Developed Area	30
Primitive Area	16
Hunting	
Big game	4
Small game	7
Migratory bird	3
Adventure activities	
Hiking	82
Backpacking	10
Mountain climbing	6
Rock climbing	5
Caving	2
Biking	92
Horseback riding	20
Canoeing	5
Kayaking	2
Rowing	1
Picnicking	
Picnicking	74
Family gathering	103
Off highway vehicles (OHV)	
Off-road driving	27

Activity	Trips (millions)
Fishing Activity	
Freshwater	36
Saltwater	25
Warmwater	26
Coldwater	13
Anadromous	11
Winter	
Downhill Skiing	14
Cross-Country Skiing	4
Snowmobiling	2
Power and sail boating	
Sailing	13
Floating, rafting	5
Motor-boating	34
Water skiing	11
Jet skiing	5
Sailboarding/windsurfing	1
Bird and wildlife watching	
Bird-Watching	32
Wildlife Viewing	43
Studying nature near water	44
Beach	
Snorkeling/Scuba	12
Visiting a beach or waterside	263
Swimming/non-pool	78

Source: Compiled by FRAP from Cordell et al., 1997

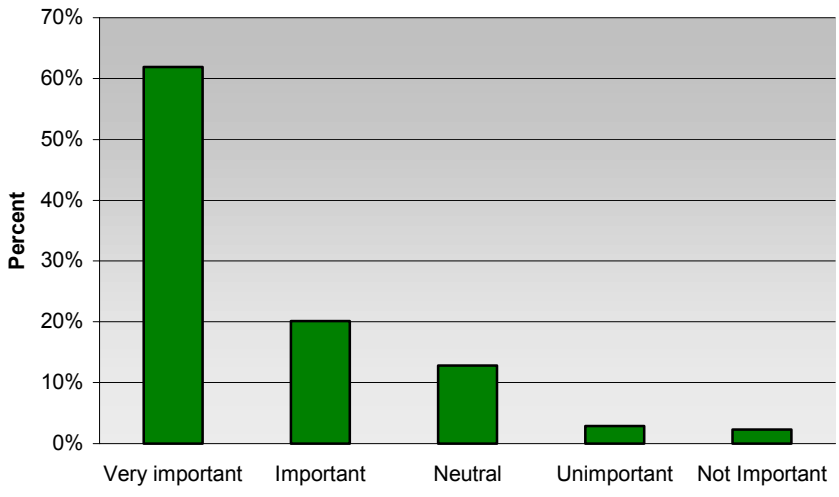
Other information from the NSRE provides age and income demographic profiles. As expected, participation in activities requiring vigorous exercise is considerably higher for young and middle-aged people than for those over 60. However, considerable numbers of people over 60 are participants. Many of these older people have more time to recreate because they are retired. However, interest in maintaining physical fitness is growing for people of all ages. For most activities, participation is low for people with family incomes below $25,000 per year. Interestingly, it often is also low for people with incomes above $100,000. Participation is highest for people with family incomes between $25,000 and $75,000 per year. Therefore, many outdoor recreational activities seem to be enjoyed primarily by the middle class (Cordell et al., 1997).

California Department of Parks and Recreation recreational satisfaction, attitudes, and preferences (This section is excerpted and adapted from *Public opinions and attitudes on outdoor recreation in California 1997: An Element of the California Outdoor Recreation Planning Program* produced by California State Parks)

Recreational experiences are an important component of the quality of life for California residents. A 1997 survey of 2,010 random California households conducted by the California Department of Parks and Recreation (DPR) provides a wealth of information on current demand for recreation (DPR, 1998). Eighty-two percent of respondents indicated that recreation is an important or very important factor to their quality of life. Sixty percent of California recreation visitors were satisfied or very satisfied with public outdoor recreation areas and facilities. Another 29 percent felt neutral satisfaction regarding their public outdoor recreation areas and facilities while only 11 percent felt unsatisfied. Overcrowding, insufficient facilities, and unsocial behavior by other visitors were the most common problems experienced by park users.

Recreational experiences are an important quality of life indicator among California residents. As indicated in Figure 2, 82 percent of users indicated recreation as important or very important factor to their quality of life. Most Californians were equally satisfied with public outdoor recreation areas and facilities. In 1997, 60 percent of California recreation visitors were satisfied or very satisfied with public outdoor recreation areas and facilities. Another 29 percent felt neutral satisfaction regarding their public outdoor recreation areas and facilities. Eleven percent felt unsatisfied (DPR, 1998).

Figure 2. Outdoor recreation importance to quality of life, 1997



Source: DPR, 1998

Perception of the recreational setting is a determinable factor for quality recreational experiences. California recreation visitors were asked a series of questions to identify their general attitudes regarding outdoor recreation lands and facilities. Ninety three percent of survey respondents indicated that protection of the natural environment is an important aspect of outdoor recreation areas. Ninety-four percent of respondents agreed that the quality of the natural setting is important to their outdoor

experience. Almost 60 percent of respondents indicated that outdoor recreation areas and facilities were overcrowded when they wished to use them. At the same time, roughly 64 percent agreed that better regulation of behavior and rules would make their experience more comfortable and safe (DPR, 1998).

Over 90 percent of survey respondents indicated that protection of the natural environment and quality of the natural setting are important aspects of outdoor recreation areas.

California recreation visitors preferred natural recreation settings as opposed to highly developed areas and facilities. Based on five broad outdoor recreation areas, 69 percent of Californians indicated in 1997 they preferred "nature-oriented parks and natural/undeveloped areas." Highly developed parks and recreation areas were preferred the least with only 9 percent favoring them. The preference for natural and undeveloped areas has increased 13 percent between 1987 and 1997, while preference for highly developed parks has dropped a corresponding 11 percent (DPR, 1998) (Table 3).

Table 3. Outdoor recreation area preference trends, 1987, 1992, and 1997 (percent)

Category	1987	1992	1997
Natural and undeveloped areas	27	42	39
Nature-oriented parks and recreation areas	29	26	30
Private outdoor recreation areas and facilities	21	14	10
Highly developed parks and recreation areas	9	7	9
Historical or cultural buildings, sites or areas	10	11	11

Source: DPR, 1998

Recreational visitors value different types of recreation activities. Walking, camping, and trail hiking were deemed the most important activities for recreational users within California. Gauging the types of activity that users find more important allows for a better understanding of visitor need (Table 4).

Table 4. Most important activities, 1997

Activity	Importance rank
Walking	1
Camping in developed sites with tent or vehicle	2
Trail hiking	3
General nature study/wildlife viewing	4
Visiting museums, historic sites	5
Use of open grass or turf areas for casual and unstructured activities	6
Camping in primitive areas/backpacking	7
Use of play equipment	8
Beach activities	9
Fishing	10

Source: DPR, 1998

Hispanic recreational preferences

Another interesting result of the survey was the evidence of substantially different preferences between the fastest growing component of California's population (people of Hispanic origin) and current users. Table 5 shows that while both Hispanics and non-Hispanics mainly prefer natural areas and nature-oriented parks, 23 percent of Hispanic respondents indicated their preference for highly developed parks and recreation area. This compares to only eight percent of non-Hispanics surveyed.

Table 5. Percentage of outdoor recreation areas preferred by Hispanics and Non-Hispanics, 1997

Category	Hispanics	Non-Hispanics
Natural and Undeveloped Areas	29	41
Nature Oriented Parks and Recreation Areas	27	31
Private Outdoor Recreation Areas and Facilities	6	10
Highly Developed Parks and Recreation Areas	23	8
Historical or Cultural Buildings, Sites or Areas	15	11

Source: DPR, 1998

Attitudes toward recreation lands and facilities varied differently among Hispanics compared to non-Hispanics surveyed. Almost 90 percent of Hispanics moderately agreed or strongly agreed that more outdoor recreation areas are needed near large cities where only 65 percent of non-Hispanic respondents moderately or strongly agreed with this statement. Almost 70 percent of Hispanics agreed or strongly agreed that recreation facilities were too crowded when they wanted to use them. On the other hand, only 57 percent of non-Hispanic respondents felt the same way. Eighty six percent of Hispanics supported increasing recreation programs for special populations compared to 55 percent of non-Hispanic respondents. Over 90 percent of Hispanics believe that special recreation programs help to reduce crime and delinquency, compared to 58 percent of non-Hispanic respondents (DPR, 1998).

Findings on recreation availability

Across all levels of government, there appears to be a noticeable trend toward increasing the number, quality, and scope of developed land-based facilities.

Nationally, across all levels of government, there is a noticeable trend toward increasing the number, quality, and scope of developed land-based facilities. This trend includes increased service levels at both public and private campgrounds, more development of facilities at both federal and State recreation areas, and closures of small, lower quality areas. (English et al., 1999). For more information on the national assessment of recreation see Implications of This Assessment.

The major suppliers of outdoor recreation on forests and rangelands in Califorina include the USFS, the National Park Service (NPS), U.S. Bureau of Land Management (BLM), California State Park System, and local governments. Other minor public providers include the U.S. Bureau of Reclamation (BOR), U.S. Army Corps of Engineers (USACE), public utility companies, and various departments of the California Resources Agency. Local, county, and regional providers are another source for wildland outdoor recreation but the boundaries between wildland recreation and urbanized recreation become hard to define. With California's urban areas containing over 81 percent of the State's population, these local areas are a dominant provider of recreation, especially open space aesthetics (Table 6).

Table 6. Area of public land available for wildland recreation (thousand acres)

Bioregion	Forest	Woodland	Grassland	Shrub	Desert	Interior water bodies and wetlands	Grand total
Bay Area/Delta	107	62	89	122	(L)	69	524
Central Coast	253	531	281	1,392		63	2,552
Colorado Desert	4	74	56	195	4,006	217	4,569
Modoc	1,620	547	59	2,155	61	15	4,807
Mojave	31	475	62	347	14,455	89	15,880
Klamath/North Coast	5,522	97	74	982		39	6,858
Sacramento Valley	3	28	61	7		25	171
San Joaquin Valley	21	66	308	42	50	233	558
Sierra	6,349	768	211	2,295		28	11,839
South Coast	452	152	97	1,595		22	2,460
Statewide	14,362	2,800	1,297	9,131	18,572	799	50,218

(L) – Less than 500 acres
Note: Totals may not add due to rounding

Source: FRAP, 2002

Table 7 summarizes use and available area for the major providers as well as by the location of the sites in reference to adjacency to the State's major metropolitan areas (Los Angeles, San Francisco Bay Area, San Diego, and Sacramento).

Table 7. Outdoor recreation on forests and rangelands by provider and location, 2002

	Visits*	12-hour RVDs**	Area available for recreation
Total in millions	196	179	45
Major provider	**Visits (%)**	**12-hour RVDs (%)**	**Acres (%)**
State Parks	40	24	3
Regional Parks	20	9	1
National Park Service	17	10	16
U.S. Forest Service	12	45	45
Bureau of Land Management	4	7	34
California Department of Fish and Game	6	5	1
Location			
Metropolitan Areas	51	43	13
Non-metropolitan areas	49	57	87

**** "Visits" refers to a single trip by a person regardless of length of stay.***
***** "Recreational Vistor Day" is a visit by one person for a 12-hour length of stay.***

Source: Compiled by FRAP from NPS, 2001; Smith, 2001; USFS, 2001a-d; USFS, 2002, a-d; DFG, 2001a; California Department of Parks and Recreation, 2001; Diddy and Taylor, 2001; Heart, 2001; Gibson, 2001; Haverty, 2001; Miller, 2001; Moore, 2001; Ritner, 2001; Shear, 2001; Stephens, 2001

Campsite inventory

Privately developed recreation facilities on the west coast have increased at about the same rate as population growth.

Information from the National Recreation Assessment (Betz et al., 1999) indicates a 42 percent increase in the number of private campsites between 1977 and 1996 for the combined Pacific Coast region (California, Oregon, Washington, and Hawaii). The 2.2 percent per year increase in private campsite availability between 1977 and 1996 compares to the annual California population growth rate during this period of about 1.5 percent per year. While there was an overall increase of private campsites between 1977 and

1996, there was a 9 percent decrease in the number of sites between 1987 and 1996 (Betz et al., 1999). The current extent of campsite facilities by region and owner created for the Division of Tourism are summarized in Table 8.

Table 8. Campsite inventory for selected bioregions and statewide, 1999-2000

County-based bioegion	Private	City-County	CA State Parks	BLM	COE	BOR	USFS	NPS	Utilities	Total
Bay Area/Delta	4,812	631	1,324	0	0	0	0	0	0	6,767
Central Coast	6,709	1,341	3,238	0	991	0	1,262	92	0	13,633
Klamath/North Coast	12,822	730	2,360	67	417	0	652	133	15	17,196
Modoc	8,071	0	707	144	0	0	4,663	645	441	14,671
Sierra	12,738	1,429	1,770	348	1,243	299	9,762	2,734	177	30,500
Statewide	91,498	8,692	15,178	751	3,202	299	19,391	5,668	633	145,312

COE – Army Corps of Engineers; BLM – U.S. Bureau of Land Management; NPS – National Park Service; USFS – U.S. Forest Service; BOR-Bureau of Reclamation
Notes: Inventory refers to developed campsites only. However, services provided at developed campsites vary.
Regions were allocated into California Department of Forestry and Fire Protection bioregions and are as follows: Bay/Delta includes San Francisco Bay Area region, North Coast includes Klamath/North Coast region, Modoc includes Shasta-Cascade region, and Sierra includes Gold Country and High Sierra regions.

Sources: Compiled by Dean Runyan Associates, 2000b

Private campgrounds account for 31 percent of all campsites in the state and nearly 55 percent of all campsites in the major forest and rangeland bioregions.

The forest and range bioregions account for 52 percent of California's total developed campsite inventory. Among the forest and rangeland bioregions, the Klamath/North Coast is the most heavily privatized region with private campgrounds comprising 75 percent of the total developed campsite inventory. The Sierra, Modoc, and Central Coast have the highest ratios of public developed campsites out of all other bioregions within California. The Sierra bioregion led all bioregions with 30,500 developed campsites. The North Coast region followed with 17,196 developed campsites (Dean Runyan Associates, 2000b)

In reviewing Table 9, the importance of private campground providers is apparent. Private campgrounds account for 63 percent of all developed campsites in the State and nearly 55 percent of all developed campsites found in the major forest and rangeland bioregions (Dean Runyan Associates, 2000b).

Table 9. Percentage of campsite inventory for selected bioregions and statewide, 1999-2000

Bioregion	Private	City-County	State Parks	BLM	COE	RCLM	USFS	NPS	Utilities	Total
Bay /Delta	71	9	20							100
Central Coast	49	10	24		7		9	1		100
Klamath/North Coast	75	4	14	< 1	2		4	1	< 1	100
Modoc	55		5	1			32	4	3	100
Sierra	42	5	6	1	4	1	32	9	1	100
Statewide	63	6	10	1	2	< 1	13	4	< 1	100

<1 – less than one half percent; BLM – COE – Army Corps of Engineers; BLM – U.S. Bureau of Land Management; NPS – National Park Service; USFS – U.S. Forest Service; BOR-Bureau of Reclamation
Notes: Inventory refers to developed campsites only. However, services provided at developed campsites vary. Regions were allocated into California Department of Forestry and Fire Protection bioregions and are as follows: Bay/Delta includes San Francisco Bay Area region, North Coast includes Klamath/North Coast region, Modoc includes Shasta-Cascade region, Sierra includes Gold Country and High Sierra regions.

Sources: Compiled by Dean Runyan Associates, 2000b

Findings on recreation use and supply on public lands

In terms of visits, the State and regional parks account for approximately two-thirds of all outdoor recreation visits on public lands; however, these same parks only make up four percent of the total public land available for outdoor recreation. With the exception of the large Yosemite and Sequoia-Kings Canyon Parks in the Sierra, most visits to National Parks are only partial day visits and have similar use patterns to State and regional parks. The USFS, along with the two large National Parks in the Sierra, supply the largest land base for multi-day outdoor recreational activities. BLM has the second largest holding of lands open for recreation, the majority of which are in the desert portions of the State. BLM is also expanding the range of recreational opportunities available on its holdings along rivers and coastlines. In terms of where outdoor wildland recreational activities occur, 50 percent of all visits and 40 percent of all hours of use occur on 13 percent of public land adjacent to major metropolitan areas.

Figure 3 and Table 10 show the estimated number of visits as well as the number of recreation visitor days (RVDs) for the major public providers. Totals for a number of agencies are split to illustrate use at different groups of facilities. The total visits include beaches but excludes city parks, golf courses, museums, and other highly developed facilities even if they are managed by public agencies.

FRAP collected recreation use statistics from major providers of forest and rangeland recreation to assess the trend in use patterns. As other researches have found, information from those who would provide it had varying quality and reliability. Since fees are often not collected and use rates do not necessarily determine budgets, use records were often incomplete and sampling methods varied from place to place and year to year. Detailed use trend data by operational units was provided by federal agencies and DPR. Use information for other providers was less complete and was developed from sources such as sample surveys, manager estimates, data from a subset of recreational units, and other estimates. These totals exclude many potentially significant providers, such as several State departments, local providers, private providers, non-government organizations, utility companies, and private camps for which FRAP has no reasonable estimates.

Figure 3. Visits* and Recreational Visitor Days** by major public outdoor recreation provider

** "Visits" refers to a single trip by a person regardless of length of stay.*
*** "Recreational Vistor Day" (RVD) is a visit by one person for a 12-hour length of stay*

Source: Compiled by FRAP from NPS, 2001; Smith, 2001; USFS, 2001a-d; USFS, 2002, a-d; DFG, 2001a; California Department of Parks and Recreation, 2001; Diddy and Taylor, 2001; Heart, 2001; Gibson, 2001; Haverty, 2001; Miller, 2001; Moore, 2001; Ritner, 2001; Shear, 2001; Stephens, 2001

Table 10. Visits*, Recreational Visitor Days**, and area by major public outdoor recreation provider

Major providers	Million acres	Million visits	Estimated RVD per visit	Million RVDs
NPS – rest of state	7.1	20	0.6	12
National Park Service - GGNRA	0.1	14	0.4	5.6
BLM	15	8	1.5	12
USFS - rural national forests	15	4.4	4.4	36.4
USFS - metro national forests	5	19.0	1.2	44.4
DFG - fishing (non USFS lands)	0.2	9.8	0.75	7.3
DFG and NWR - hunting (non USFS lands)	0.4	2.0	1	2.0
State Parks - wildlands	1.1	33	0.75	24.8
State Parks - other beaches	0.1	18	0.4	7.2
State Parks - Southern California beaches	0.05	28	0.4	11.2
East Bay Regional Park District	0.1	14	0.4	5.6
Mid Peninsula Open Space District	0.04	8	0.4	3.2
Other major regional parks	0.05	4	0.4	1.6
Other city and county wildland parks	0.38	14	0.4	5.6

** "Visits" refers to a single trip by a person regardless of length of stay.*
*** "Recreational Vistor Day" (RVD) is a visit by one person for a 12-hour length of stay*
BLM – U.S. Bureau of Land Management; DFG – California Department of Fish and Game; NPS – National Park Service; NWR – National Wildlife Refuge; RVD – recreation visitor day; USFS – U.S. Forest Service

Source: Compiled by FRAP from NPS, 2001; Smith, 2001; USFS, 2001a-d; USFS, 2002, a-d; DFG, 2001a; California Department of Parks and Recreation, 2001; Diddy and Taylor, 2001; Heart, 2001; Gibson, 2001; Haverty, 2001; Miller, 2001; Moore, 2001; Ritner, 2001; Shear, 2001; Stephens, 2001

The most popular areas for use include beaches and wildlands located in close proximity to urban areas. As shown in Table 11, these areas comprise nearly 4 million acres in California and support 110 million visits annually. In contrast, rural wildlands comprise 17 million acres but only 2.4 million visits annually. The intensity of use on wildlands located next to urban areas is nearly 200 times greater compared to wildlands located in rural settings.

Heavy use can be attributed to the proximity of urbanized areas as well as a lack of wildland recreation supply. With such heavy use of these parks, competition for recreational needs as well as conflicting uses create unique problems for wildland administrators. In addition to increased competition and uses, the considerable maintenance required to prevent degradation to these wildland parks can become overwhelming and costly.

Table 11. Recreation use intensity for select use areas, 2002 (millions)

	Acres	Visits*	RVDs**	RVDs/acre
State Parks - Southern California beaches	0.05	28	11	224
Other Metropolitan wildlands	0.8	72	29	37
USFS - metropolitan national forests	3	10	22	4
USFS - rural national forests	11	2	18	1
USFS wilderness	6	0.4	2	0.4

** "Visits" refers to a single trip by a person regardless of length of stay.*
*** "Recreational Vistor Day" is a visit by one person for a 12-hour length of stay.*

Source: Compiled by FRAP from USFS, 2001a-d, USFS, 2002a-d, California Department of Parks and Recreation, 2001

Table 12 shows the dramatic difference in recreation use when wildland parks are located near a major urban center. Annual visitors per acre to Muir Woods park is nearly ten times greater than the visit intensity at Armstrong Redwood park which is only 80 miles from the San Francisco Bay Area. With the San Francisco Bay Area only 20 miles away, Muir Woods has the largest annual visitation of 1.3 million visitors and the smallest amount of acres for Redwood parks located near the San Francisco Bay Area.

Table 12. Use per acre for selected redwood parks, 1990-2000

Select redwood parks	Acres	Annual visitors 1990-2000	Annual visitors per acre	Miles from San Francisco Bay Area
Muir Woods	549	1,311,000	2,388	20
Armstrong Redwoods	780	200,000	256	80
Samuel P. Taylor	2,792	187,000	67	40
Henry Cowell Redwoods	4,376	292,000	67	50
Big Basin	17,478	907,000	52	40
Jedediah Smith Redwoods	10,165	177,000	17	400
Del Norte Coast Redwoods	6,325	84,000	13	380
Humboldt	53,672	637,000	12	210
Redwood National and State Park	80,665	401,234	5	340

Source: Compiled by FRAP from California Department of Parks and Recreation, 2001; NPS, 2001

Findings on recreation use and supply by major provider

Major recreation providers

FRAP collected recreation use statistics from major providers of forest and rangeland recreation to assess the trend in use patterns. As other researches have found, information from those who would provide it had varying quality and reliability. Use records were often incomplete and sampling methods to determine visits often were not based on scientific methods. As these methods of collecting use data are not scientifically based, sampling errors (confidence intervals to frame the suggested accuracy of the data) is not provided. Data was collected during 2000 and 2001 from major public providers.

Data was collected for four tiers of recreation providers. Federal providers include the USFS, NPS, BLM, BOR, and the USACE. State providers include DPR, California Department of Forestry and Fire Protection (CDF), California Department of Fish and Game (DFG), and Conservancies. Local providers include city, county, regional parks and open space districts and non-governmental organizations (NGOs). Private providers include private landowners.

Federal provider: National Park Service

The National Park Service (NPS) includes 23 parks, monuments, recreation areas, and seashores covering over seven million acres. The NPS has parks in all regions of the State and collects some of the most consistent statistics on number and length of visits. In addition to the large National Parks in the Sierra Nevada and the desert, the NPS maintains a number of parks in or adjacent to large urban areas. The Golden Gate National Recreation Area in and around San Francisco is the most visited National Park site. Yosemite National Park is one of the most internationally renowned parks of the NPS and is still the focus of considerable political interest as it continues to work on a new long-range management plan.

NPS recreation statistics were obtained from its website. Our analysis focused on parks with forest and rangeland settings and used data on the number and length of visits (Table 13). For complete use statistics, see the online document Fiscal Year Visitor Days Report.

Table 13. Visits* and Recreational Visitor Days** on National Park Service parks in forests and rangelands by bioregion and statewide, 1990-1999 (thousand visits and RVDs)

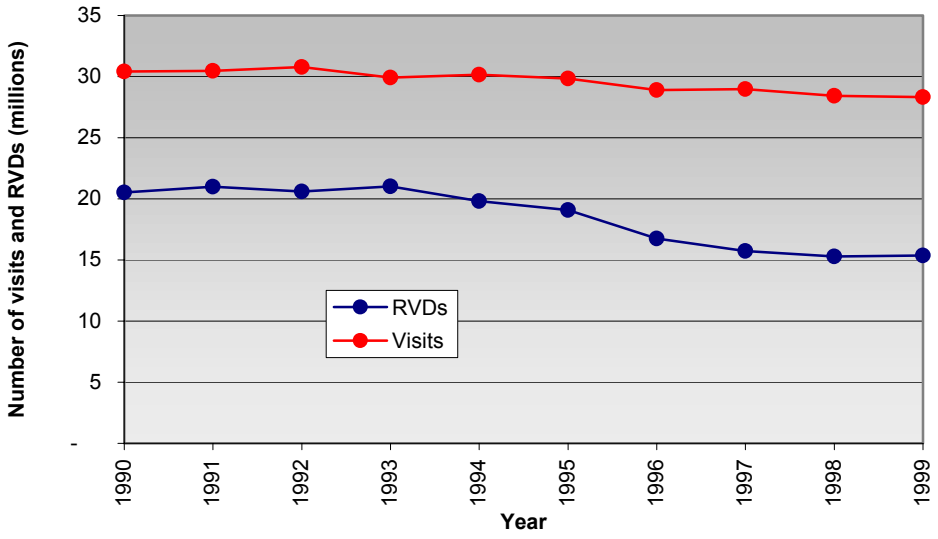
Statewide and bioregions	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change 1990-1999
Statewide											
RVD	20,857	21,365	21,042	20,946	19,522	18,518	16,062	15,081	14,541	14,498	-31
Visits	30,414	30,465	30,774	29,932	30,153	29,846	28,893	28,977	28,428	28,318	-7
RVD/visit ratio	0.686	0.701	0.684	0.7	0.647	0.62	0.556	0.52	0.512	0.512	-25
Visits											
Bay/Delta	18,499	18,612	19,513	18,775	18,569	18,200	17,727	17,855	17,384	17,232	-7
Central Coast	214	193	192	195	173	178	164	172	95	165	-23
Klamath/North Coast	2,351	1,903	1,174	867	1,426	1,467	1,271	1,080	1,136	1,086	-54
Mojave	691	744	869	998	971	1,109	1,189	1,567	1,552	1,619	134
Modoc	533	539	632	613	498	473	460	504	434	489	-8
Sierra	5,410	5,760	5,508	5,677	5,828	5,741	5,510	5,306	5,180	5,079	-6
South Coast	1,693	1,569	1,666	1,554	1,504	1,443	1,476	1,646	1,612	1,723	2

** "Visits" refers to a single trip by a person regardless of length of stay.*
*** "Recreational Vistor Day" is a visit by one person for a 12-hour length of stay.*

Source: compiled by FRAP from NPS, 2001

During the 1990s, the total number of visits declined in all regions. A much more noticeable decline was in the number of total hours of use measured by the number of standardized RVDs. While unique factors such as temporary closures due to floods, fire, and landslides have affected major parks such as Yosemite, the consistent decline suggests other factors such as relative inconvenience of travel to remote park locations or broader economic conditions limiting extended travel. Figure 4 summarizes NPS RVD trends in California.

Figure 4. Visits* and Recreational Visitor Days** on National Park Service parks in forests and rangelands, 1990-1999



** "Visits" refers to a single trip by a person regardless of length of stay.*
*** "Recreational Visitor Day" is a visit by one person for a 12-hour length of stay.*

Source: Compiled by FRAP from NPS, 2001

Table 14 displays the RVD trends by bioregion. Complete information on park-specific data is summarized by FRAP at California NPS Visits by Bioregion by Park and complete use information is found at Fiscal Year Visitor Days Report.

Table 14. Recreational Visitor Days* on National Park Service parks in forests and rangelands by bioregion and statewide, 1990 and 1999 (thousand RVDs)

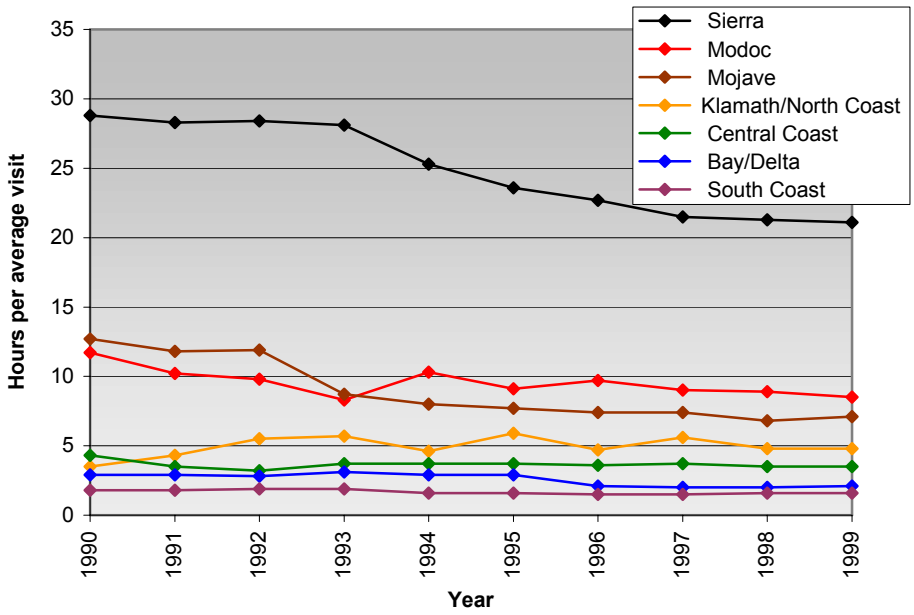
Bioregions	1990	1999	Percentage change 1990-1999
Sierra	12,986	8,936	-31
Bay/Delta	4,521	2,999	-34
Mojave	1,815	1,504	-17
Modoc	685	438	-36
Klamath/North Coast	522	347	-34
South Coast	251	226	-10
Central Coast	76	48	-37
Statewide	20,857	14,498	-31

** "Recreational Visitor Day" is a visit by one person for a 12-hour length of stay*

Source: compiled by FRAP from NPS, 2001

Along with the decline in number of visits and RVDs, national parks hours per visit have declined. This data suggests the tendency towards shorter visits to remote national parks (Figure 4).

Figure 4. Length of visit at national parks by California bioregion, 1990-1999



Source: compiled by FRAP from NPS, 2001

Federal provider: U.S. Forest Service

The USFS manages 20 national forests covering over 20 million acres within California. This includes 51 wilderness areas (4.2 million acres), 2,467 lakes and reservoirs, over 13,000 miles of rivers, and 13,400 miles of maintained trails. Developed facilities include 105 marinas, 32 swimming sites, 819 campgrounds, 213 picnic areas, 6,500 recreation areas, 33 ski areas, 65 interpretive sites, and 514 organized camps. These areas span a vast array of recreational opportunities. For information on USFS recreation, see Recreational Activities.

The amount (supply) of USFS recreation is defined by the setting, activities, and facilities available to the user. The recreation setting is the environment created by the managerial administration of the recreation area. For example, wilderness portions USFS with their vast, unroaded natural environment have a predominance of "primitive" recreation settings oriented towards wilderness hiking and other non-motorized uses. Other portion national forests have developed facilities with access by motorized vehicles, such as boat ramps, campgrounds, and areas next to the extensive road system support a broader range of uses.

U.S. Forest Service national visitor use monitoring results

Until the 1990s, recreational management was typically treated as a cost of public land management and received only limited levels of discrete funding. As commodity production and associated revenue declined in the 1990s, greater attention was paid to the role of recreation as a core function. Historical

data collection methods that were used to estimate recreation use were inconsistent across reporting units and often yielded questionable results. In response to the need for improved information, the USFS initiated a new data collection method dubbed the National Visitor Use Monitoring (NVUM) program. The NVUM is designed to provide statistically reliable estimates of recreation visitation. The NVUM, visitation estimates are generated for individual national forests, USFS regions, and for the National Forest Service as a whole. Recreation visitation estimates are developed annually for one fourth of the reporting units in each region. Upon completion, the cycle will continue with every reporting unit being resurveyed every five years. In May of 2001, the USFS released their first year NVUM results.

As an example of the NVUM results compared to previous USFS data collection methods, FRAP examined the results for the Angeles National Forest. The Angeles National Forest was included in the first year of the survey. The results of this survey vary dramatically from the latest 1996 Recreation Information Management (RIM) system results. The NVUM reported 3.5 million visits on the Angeles National Forest in 2000 with a plus or minus 7.3 percent error rate while the RIM system had reported 29.6 million visits in 1996 (USFS, 2001a; Enocege, 2000).

The NVUM also showed some differences for RVDs associated with length of time for each visit. The NVUM reported the average length of stay in Angeles National Forest was 18 hours. This length of stay equates to 1.5 RVD (when using the RIM system conversion of 12 hours of recreation equals one visitor day) (USFS, 2001a). Therefore 3.5 million visits reported by the NVUM in 2000 equates to 5.3 million RVDs, compared to 19.3 million RVDs reported in 1996.

Other findings from the NVUM included recreation activity during the visit. Within the Angeles National Forest, the top five recreation activities were general relaxation, downhill skiing or snowboarding, viewing nature, hiking/walking, and picnicking. Whiles these categories are not precisely similar to the 1996 RIM activity by use, they suggest differences in recreation preference compared to the 1996 results. (USFS, 2001a)

As a result, we are only using the recreational use data available for the National Forests where the new NVUM data has been collected and published. Region wide estimates of total use have been made by the National Forest system, but the more detailed use pattern data in this assessment is based only on the published results of the NVUM for California's National Forests. For information of the NVUM Program, see Recreation, Heritage & Wilderness Programs: National Visitor Use Monitoring.

Table 15 and 16 summarizes the percentage of visitors that undertook different activities for four metropolitan National Forests (Angeles, Cleveland, Los Padres, Tahoe) and four non-metropolitan forests (Klamath, Modoc, Lassen, Plumas) that have been completed by the NVUM as of 2002..

Table 15. Major activities of visitors to eight national forests in California as a percentage of total visits, 2002

Activity	Percentage of visitors (metropolitan national forests)	Percentage of visitors (Non-metropolitan national forests)	Percentage of visitors (all eight national forests)
Viewing	47	55	48
General relaxation	41	50	43
Hiking/ walking	36	38	37
Skiing	29	4	24
On road driving	17	24	18
Fishing	11	29	14
Developed camping/ resorts	13	17	14
Off Highway Vehicles (OHV)	10	7	9
Mountain Biking	6	7	6
Hunting	4	4	4
Minor Forest Products Collection	2	6	3
Designated Wilderness	2	6	3

NVUM – National Visitor Use Monitoring; Viewing – includes wildlife watching, scenergy viewing, visiting historic sites or nature centers; On road driving – driving for pleasure; Minor forest products collection – includes gathering mushrooms, berries, firewood, or other natural products

Source: Compiled by FRAP from USFS, 2001a-d; USFS, 2002a-d

Table 16. Visits* and percentage of visits by facility within eight national forests, 2000- 2001

Visits and facility usage (%)	Metro National Forests	Non-metro National Forests
Visits (millions)	9.5	2.1
Facilities (percent of visitors using)		
Trails	33	28
Picnic areas	8	21
Boat launches	4	20
Other forest roads	9	26
Campgrounds	7	22
Scenic byways	9	24
Downhill and nordic ski areas	34	2
Swimming areas	6	16
Snowmobiles	0	2
Designated wilderness	2	6

**** "Visits" refers to a single trip by a person regardless of length of stay.***

Source: Compiled by FRAP from USFS, 2001a-d; USFS, 2002a-d

Federal provider: U.S. Bureau of Land Management

In the fast-growing West, the demand for outdoor recreational opportunities has soared. This is reflected in the seven percent increase in the estimated recreational visits to U.S. Bureau of Land Management (BLM) managed lands, which rose from approximately 50 million visits in 1998 to 54 million visits in fiscal year 2000. As Western cities and towns grow closer to formerly remote BLM lands, more domestic visitors and international travelers are turning to these lands as their outdoor recreational playground and as a sanctuary for rest and solitude. Today, two-thirds of the public lands in the lower 48 states are within an hour's drive of large cities and growing communities. Lands managed by the BLM have become the West's backyard, providing one of the last guarantees of open space (Smith, 2001). For additional information on BLM recreation, see Bureau of Land Management California Outdoor Recreation.

BLM public lands and related waters are losing their reputation as one of the recreation community's best-kept secrets in the West. These public lands provide visitors with more diverse recreation opportunities across a broad geographic area than any other federal agency. These include; hunting, fishing, camping, hiking, horseback riding, boating, white water rafting, hang gliding, off-highway vehicle, mountain biking, birding and wildlife viewing, winter sports, climbing and natural/cultural sites. See the online documents Bureau of Land Management National Management Strategy for Motorized Off-Highway Vehicle Use and Bureau of Land Management National Mountain Bicycling Strategic Action Plan for more information.

On the 14.5 million aces of BLM lands, nearly all lands are classified as forest and rangeland. While the BLM has land in nearly every county in the State, the geographic concentrations of land are found in the desert and northeast areas. BLM operates 87 developed recreation sites with 2,256 campsites, 160 picnic sites, and two boat ramps. Lands administered by the BLM are a major source of off-highway motor vehicle recreation. Additionally, BLM has large recreation holdings in the California desert (DPR, 1994).

BLM data was provided by RVD and BLM region office and does not reflect California Biodiversity Council bioregion trends. Information shows increased use between 1994 and 2001. Data reliability is currently being reviewed by FRAP and BLM to ensure completeness of data, allocation of BLM regions to consistent bioregions, and BLM user activity preferences. The data will be further evaluated when complete information becomes available in 2003 (Table 17).

Table 17. Recreation Visitor Days* by U.S. Bureau of Land Management field office and resource area in forests and rangelands, 1994-2001

Region	1994	1995	1996	1997	1998	1999	2000	2001	1994-2001 percent change
Alturas Resource Area/Alturas Field Office	28,746	28,331	29,707	29,799	31,533	26,409	25,478	18,768	-35
Arcata/Arcata Field Office	276,467	203,718	379,451	401,316	376,924	312,789	275,627	516,571	87
Bakersfield District/ Bakersfield Office	221,580	274,382	127,443	128,796	123,417	114,079	115,313	109,605	-51
Barstow/Barstow Field Office	N/A	387,542	442,289	426,161	315,505	278,768	375,120	603,668	
Bishop Resource Area/Bishop Field Office	1,159,460	1,333,573	1,234,162	1,207,275	1,203,679	369,379	316,282	864,034	-25
Clear Lake Resource Area/ Ukiah Field Office	608,121	389,681	349,912	372,449	407,380	103,771	113,290	104,034	-83
Eagle Lake Resource Area/ Eagle Lake Field Office	90,663	122,976	120,059	114,507	113,667	38,679	39,201	38,444	-58
El Centro Resource Area	1,640,886	1,721,456	1,910,102	2,610,016	5,580,000	766,771	1,144,307	816,002	-50
Folsom/Folsom Field Office	431,414	449,129	384,431	406,717	394,474	423,422	494,610	444,600	3
Hollister Resource Area/ Hollister Field Office	71,522	126,856	98,369	63,872	50,049	47,060	70,841	29,301	-59
Needles Resource Area/ Needles Field Office	97,300	14,384	28,831	20,952	47,991	41,230	46,455	60,103	-38
Palm Springs-South Coast Resource Area/Field Office	649,437	2,176,583	3,346,379	2,019,572	741,853	1,383,632	329,663	3,596,170	454
Ridgecrest/Ridgecrest Field Office	541,150	568,786	577,841	588,344	610,942	443,752	439,845	369,155	
Surprise Resource Area/ Surprise Field Office	46,318	49,017	54,563	55,926	61,144	4,054	2,691	9,894	-79
Redding Resource Area/ Ukiah District/Redding Field Office	213,535	243,536	256,364	254,189	239,910	272,379	175,208	184,932	-13
California Coastal National Monument	N/A	N/A	N/A	N/A	N/A	N/A	167	208	
Grand Total	6,076,596	8,089,952	9,339,903	8,699,892	10,298,469	4,626,174	3,964,098	7,765,489	28

N/A – Not available
**** "Recreational Visitor Day" is a visit by one person for a 12-hour length of stay***

Source: Compiled by FRAP from Smith, 2001

Federal provider: U.S. Bureau of Reclamation

The U.S. Bureau of Reclamation (BOR) operates multi-purpose water supply projects, which develops recreation, fish, and wildlife enhancements at project sites. BOR supplies over 340,000 acres of land and water for recreation purposes. Of the 55 project sites, BOR has identified 31 that have forest and rangeland wildland conditions. Of these 31 sites, only three (New Melones Lake, Lake Berryessa, and Folsom South Canal Trail) are actually administered by BOR. All other BOR sites are actually administered by other agencies. Recreation is accounted for in the use numbers from those providers. For more information, see Recreation.

BOR recreation use statistics were obtained from regional planners in the Mid-Pacific Region of BOR for 1985 through 1997. Lake Berryessa, Folsom South Canal Trail and New Melones Lake were the only regions applicable to our analysis of recreation on BOR lands because the rest are managed by different agencies. Recreation use statistics from other agencies were not double counted in FRAP's analysis of BOR recreation.

BOR administered areas had just over 1.2 million RVDs in 1997. RVDs were down 48.2 percent between 1987 and 1997. Since there are only a small number of BOR facilities, no regional analysis could be completed. Additionally, recreation use by activity was not available (Petrinovich, 2000).

Federal provider: U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) operates ten reservoirs in California that have been developed for flood control, drinking water, electricity, and recreation. USACE operated reservoirs have over 16,000 surface acres of water for many recreation activities such as boating and fishing. In addition, the USACE administers many parks and campgrounds in close proximity to their reservoirs.

Recreation use statistics are incomplete at this time; however, more research and contacts are being made to attain better information. New information will be included in periodic updates of this Assessment. For information on USACE recreation, see US Army Corps of Engineers, Sacramento District.

State provider: California Department of Parks and Recreation

The State Park system encompasses over 1.4 million acres of land and contains over 277 classified units and major unclassified properties which contains a wide variety of natural and developed settings. Of primary concern are the State Parks located in natural, wildland geographic settings associated with forest and rangeland ecosystems. Just over half (139) of the parks can be considered to have wildland settings with forest and rangeland vegetation. The number of forest and rangeland parks and associated facilities has remained relatively stable over the last ten years.

FRAP grouped DPR sites into three category types we defined as wildlands, beaches, and facilities. FRAP then recalculated the site level statistics to account for missing values or very high or very low printed values. For missing values or values plus or minus 40 percent of the decade long average, the decade average was substituted.

Table 18 summarizes wildland park use within the California Department of Parks and Recreation (DPR) system based on FRAP's recalculation of original DPR site visit data. Wildland accounts for only one third of total DPR visits with beaches, museums and facilities dominating overall use. Wildland parks (those selected by FRAP to be located within forests and rangelands) use was estimated at just over 33 million visits in 1999. Visits to this subset of State Parks remained stable between 1991 and 1999. The South Coast and Central Coast bioregions had the most visits.

Table 18. Visits* on selected California Department of Parks and Recreation parks considered to be forests and rangelands by bioregion and statewide, 1991-1999 (thousand visits)

Bioregion	1991	1992	1993	1994	1995	1996	1997	1998	1999	1999 percentage of State total
Bay Area/Delta	3,557	4,209	4,098	3,770	4,138	4,183	3,880	4,341	4,334	12
Central Coast	5,889	6,019	5,841	5,370	6,483	6,276	5,933	6,252	6,875	19
Colorado Desert	1,922	2,013	2,097	2,155	2,114	1,969	1,877	1,713	1,716	6
Klamath/North Coast	3,892	3,848	3,751	3,949	3,634	3,715	3,609	3,634	3,552	11
Modoc	214	181	197	194	199	182	164	189	171	1
Mojave	655	783	713	697	658	445	537	566	568	2
Sacramento	232	215	250	212	275	223	204	204	271	1
San Joaquin	592	715	606	485	672	483	562	567	461	2
Sierra	5,253	4,910	4,958	4,545	4,489	4,946	4,254	4,702	4,788	15
South Coast	10,175	10,302	10,433	10,012	10,539	10,214	10,016	10,310	10,744	32
Statewide	32,382	33,195	32,945	31,389	33,202	32,635	31,037	32,477	33,482	100

"Visits" refers to a single trip by a person regardless of length of stay.

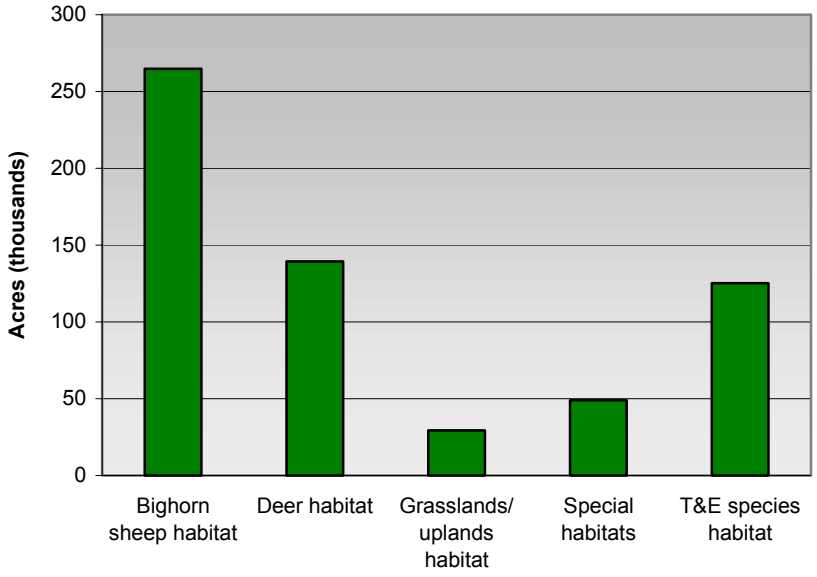
Source: Compiled by FRAP California Department of Parks and Recreation, 2001

State provider: California Department of Fish and Game (also Wildlife Conservation Board)

The California Department of Fish and Game (DFG) manages over 900,000 acres of which 470,800 are owned in fee title and 436,000 are administered for other agencies. Land with forest and rangeland settings approximates 600,000 acres and includes bighorn sheep habitat, deer habitat, grassland/upland habitats, special habitats, and threatened and endangered habitats (Figure 5). More information on these locations can be found at Lands and Facilities Branch.

DFG, in concert with the Wildlife Conservation Board, acquires, develops, and improves facilities associated with wildlife fishing, access to reservoirs, nature trails, and interpretive sites. Uniform visitor statistics are not kept by DFG on their ownerships. For many areas, especially those with water bodies, visits by licensed hunters and fishers constitute a large portion of the visitors. The best estimate of use rates is the annual numbers of licenses and estimates of the number of times license holders engage in those activities. Publications such as the Wildlife Area Map Packet provide detailed maps of DFG and other public lands available for hunters who purchase upland game stamps (DFG, 2001a).

Figure 5. Area of forest and rangeland administered by the California Department of Fish and Game by habitat type, 2002



Source: DFG, 2002

State provider: California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CDF) manages eight State Forests covering over 71,000 acres. CDF recreation facilities include over 190 campsites, 58 picnic sites, and two visitor centers (DPR, 1994). Most utilization of State Forests is categorized as day use; however, nearly all State Forests provide facilities for overnight camping.

State provider: Conservancies

The State funds several conservancy programs that acquire land and easements for recreation and habitat protection purposes. The major conservancies related to forest and rangeland recreation include Baldwin Hills Conservancy (1,200 acres), California Tahoe Conservancy (148,000 acres), Coachella Valley Mountains Conservancy (1.25 million acres), San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy (569,000 acres), San Joaquin River Conservancy (5,900 acres), Santa Monica Mountains Conservancy (17,000 acres) and the State Coastal Conservancy (100,000 acres). The San Diego River Conservancy was newly established in 2002 and has begun major restoration projects along the San Diego River.

The large acreages refer to the overall area within which the conservancies conduct acquisitions and projects rather than lands owned by the conservancies. Conservancy acreage has been growing since the emergence of the concept in the early 1990s. Recent initiatives will provide considerable additional funding for expanded acquisition and management by conservancies. Visitor statistics to many conservancies are often included in statistics for State, federal, and local park systems. The level of visits

per acre on conservancy-sponsored projects will probably be as high as the use rates for well-developed regional parks and some of the beach parks of the DPR. For more information, see Conservancies.

The main goals of California conservancies are to protect, preserve, and enhance natural habitat corridors while providing public access and unique recreational opportunities to everyone. Conservancies provide recreational opportunities in the form of nature trails, wildlife viewing, and outdoor education. Conservancies are unique in that they provide recreation in biologically diverse areas where maintaining ecological integrity of the area is the most important component for management. Below is a sample of conservancies in California and their accomplishments. For more information on individual conservancies, see the links above.

The State Coastal Conservancy was established in 1976. The Conservancy has completed over 600 projects, with over 300 projects currently active. These projects include construction of trails and other public access facilities, restoration and enhancement of wetlands and other wildlife habitat, restoration of public piers and urban waterfronts, preservation of farmland, and other projects in line with the goals of California's Coastal Act, the San Francisco Bay Plan, and the San Francisco Bay Area Conservancy (California Coastal Conservancy, 2000).

The Tahoe Conservancy was established in 1985 and has authorized the expenditure of $22.9 million to carry out 35 public access and recreation projects in the Tahoe Basin, some funded directly and some through grants to other agencies. More than 355 acres of land has been acquired for recreation and public access purposes, including a mile and a quarter of lake or beach frontage, a priority because opportunities to increase access to the lake are so rare. Parking areas with more than 250 parking spaces have been constructed or improved. Trailheads have been constructed or improved at several locations, including access to the newly constructed Tahoe Rim Trail. In addition, the program is resulting in the construction or enhancement of some 29 miles of hiking, biking, and cross-country ski trails through funding of the acquisition of rights-of-way, construction, or both. Planning is also underway for interpretive centers at two important gateways to the basin (California Tahoe Conservancy, 2000)

The California State Legislature established the Santa Monica Mountains Conservancy in 1980. Since that time, it has helped to preserve over 55,000 acres of parkland in both wilderness and urban settings and has improved more than 114 public recreational facilities throughout southern California. Through direct action, alliances, partnerships, and joint powers authorities, the Conservancy's mission is to strategically buy back, preserve, protect, restore, and enhance treasured pieces of southern California to form an interlinking system of urban, rural and river parks, open space, trails, and wildlife habitats that are easily accessible to the general public (Santa Monica Mountains Conservancy, 2000).

Local providers: City, county, and regional parks and open space districts

Local parks in the State, including city parks, were estimated to cover nearly 600,000 acres in the late 1980s. Local parks with wildland settings and forest and rangeland vegetation are only a part of the total 600,000 acres of local parks listed. A portion of these lands, especially city parks, will be developed settings with irrigated grass and other developed facilities. Wildland local parks are predominately found in the Bay/Delta, Central Coast, and South Coast bioregions and are particularly prevalent in areas adjacent to the Bay Area, Los Angeles, Orange, and San Diego County urban areas. Local park acreage is

considerably less extensive in the more rural regions of the State that already have large areas of federal land (Table 19).

Table 19. Area of local lands providing recreation

Local provider	Acres
Cities	129,000
Counties	257,000
Districts	183,000
Total	569,000

Source: DPR, 1994

Table 20. Estimated area of forest and rangeland by selected local providers

Major local provider	Acres
East Bay Regional Park District	76,500
Mid Peninsula Regional Park District	38,000
Santa Clara County	31,196
San Diego County	30,000
Monterey County	28,489
Orange County	17,477
Los Angeles County Regional parks	17,080
Marin Open Space District	14,000
Riverside County	13,623
San Mateo County	10,493
Santa Barbara County	7,702
Sonoma County	5,538
City of Chico	3,670

Source: Compiled by FRAP, 2002

The total area of local parks with forest and rangeland settings has not been identified because complete information from all likely providers is not yet summarized. Additionally, identification of areas that only contain wildland settings needs to be conducted. Some of the land is preserved for ecological values that are incompatible with recreational use or contains highly developed settings without significant wildland characteristics (e.g., golf courses). Other smaller regional parks (e.g., Pleasant Hill Regional Park District, Hayward Regional Park) have also been identified as having wildland characteristics.

Local provider: Regional and recreational park districts

Regional park district (RPD) recreation statistics were obtained by contacting individual park districts based on the existence of wildland recreation opportunities. Data shown below on use statistics were generally stratified to reflect use only in wildland settings.

Several major providers including East Bay Regional Park District, Midpeninsula Regional Open Space District, Pleasant Hill Recreation and Park District, and Livermore Area Recreation and Park District were identified and asked to supply recreation use statistics. FRAP recognizes that several other RPDs with wildland settings are found within the State, particularly in southern California.

Information received varied among park districts because some had insufficient data to summarize recreation use. Thus, our results are based on a few sample parks that provided use statistics. Our partial summary indicates that at least 20 million visits occurred in wildland settings on these regional parks.

The East Bay Regional Park District (EBRPD) had an estimated 13.7 million park visits in 1999. The top three activities included walking, hiking, and bicycle riding. These three activities accounted for 49 percent of all recreation activities within the park district (Diddy and Taylor, 2001). Based on the similarities in urban location and facilities to EBRPD, FRAP estimate that over 5 million visits occurred on the Midpeninsula Regional Park District. Use data did show that hiking, bicycle riding, and horseback riding were the most popular activities within the park district (Heart, 2001).

Hiking, biking, and equestrian trails dominate the type of facilities available for wildland recreation use in regional parks and open space areas. To a lesser extent, regional parklands offer picnicking and camping as well. Since many RPDs are located near major urban areas, competing use preferences (hiking, biking, walking, equestrian) continue to create challenges for site administrators. Trail use management is becoming an important part of individual RPD recreation plans.

Competing recreation uses: The Midpeninsula Regional Open Space District has adopted management practices to accommodate these diverse user groups. After performing recreation activity counts and working closely with hikers, bicyclists, and equestrians, the district adopted a policy that calls for a ratio of 60 to 65 percent multi-use trails to 35 to 40 percent hiking or hiking/equestrian only trails to better suit the needs of their visitors. This guideline will help develop trail use designations as part of the district's use and management planning process in the future (Heart, 2001).

As the population continues to rise in California, more regional parks are going to experience increasing recreation demands and user conflicts. In order to provide a meaningful recreation experience for all current and potential visitors, recreation facility management will need to be carefully planned.

Regional provider: County parks

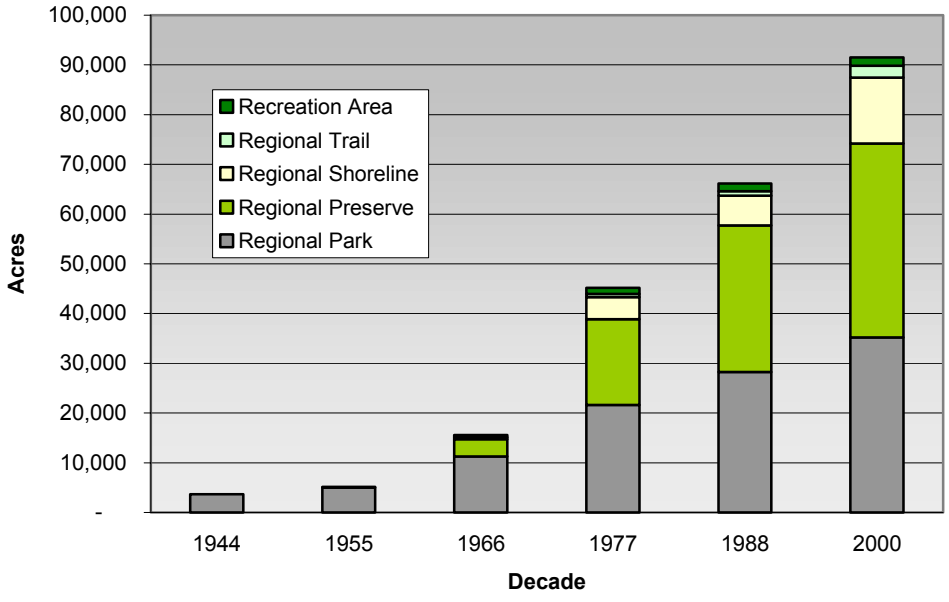
Certain California counties were recognized as having wildland recreation managed by county recreational departments. As a result, data were collected from Santa Clara County Parks, County of Orange Harbors, Beaches, and Parks, Santa Barbara County Parks, Environmental Services Agency, County of San Mateo, Monterey County Parks, County of Los Angeles Department of Parks and Recreation, and County of Sonoma Regional Parks Department. San Luis Obispo County Parks, County of Santa Cruz Department of Parks, Open Space and Cultural Services, Ventura County Parks Department, Riverside County Regional Parks, San Bernardino County Regional Parks, and County of San Diego Parks and Recreation have been contacted and information is pending. Our results reflect the counties that gave FRAP utilizable recreation user statistics. Our results are not a California summary of county wildland recreation, however. Recreation statistics obtained are summarized below and show over 12 million-recreation visits in 1999 or 2000.

- Sonoma County had an estimated 3.6 million visitors on wildland parks in 1999. Park visitors have increased 84 percent since 1990 on Sonoma County wildland parks (Haverty, 2001).
- Los Angeles County had an estimated 574,745 visitors on wildland parks in 1999 (Ritner, 2001).

- Monterey County had an estimated 1.2 million visitors on wildland parks in 2000. Hiking/walking, camping, and water play are the primary activities in Monterey County wildland parks (Stephens, 2001).
- San Mateo County had an estimated 586,019 visitors on wildland parks in 2000. Visitor numbers have increased 26 percent between 1991 and 2000 on San Mateo County wildland parks. Hiking/walking, horseback riding, and camping/picnicking were the primary activities on San Mateo County wildland parks (Moore, 2001).
- Santa Barbara County had an estimated 3.5 million visitors on wildland parks in 1999. Camping, picnicking, and hiking/walking were the primary activities on Santa Barbara County wildland parks (Gibson, 2001).
- Orange County had an estimated 286,153 visitors on wildland parks in 2000. Visitation has remained flat since 1995 (Miller, 2001).
- Santa Clara County had an estimated 2.9 million visitors on wildland parks in 2000. Hiking/walking, bicycle riding, and picnicking were the primary activities on Santa Clara County wildland parks (Shear, 2001).

Since 1986, local wildland parks have been growing. Figure 6 illustrates the expansion of the East Bay Regional Park over the past fifty years. Other park districts have also expanded but EBRPD remains the largest in the state.

Figure 6. Area of East Bay Regional Park (EBRPD) by land types, 1940-2000



Source: Economic and Planning Services, 2000

Non-governmental organizations

Various land trusts, private conservancies, clubs, and societies are a growing land base that may provide recreation on private land. FRAP has identified several non-governmental organizations (NGOs) where forest and rangeland use may be available, but findings on the extent and use has not been summarized.

Recreation on Private lands

Considerable outdoor recreation also occurs on privately owned forests and rangelands, especially on parcels owned by individuals rather than businesses. Recent surveys suggests that around half of all owners of non-industrial forest and rangeland properties in the Pacific Coast states (California, Oregon and Washington) allow their land to be used for recreation by their extended family and friends (Teasely et al., 1999). With only 11 percent of private land open to use by anyone, private lands are not a replacement for public lands available for recreation by the general public. With over 4 million acres of non-industrial forest land and an even larger area in small to medium rangeland parcels in the state, private lands still represent a significant portion of the area available for outdoor recreation, especially in areas with limited public land and where potential users live in the same communities as the landowners.

Eleven percent of private land is available for recreation by persons unknown to the landowner.

In areas with limited public lands, private land will play a key role in the total supply of outdoor recreational opportunities. In the past, private lands have been a key resource supporting many different types of outdoor activities. Relatively few landowners allow unfettered public access to their lands but many allow friends and families to use the land for recreation. In several regions of the country, the proportion of owners allowing public use declined by at least 35 percent from 1985 to 1995. In the Pacific Region only 11 percent of the private land is available to persons unknown by the landowner. This decrease, along with the continued conversion of forest and agricultural land around cities into housing, commercial, and other developments, leaves only large tracts of undeveloped public land to support a growing share of recreational activities (Teasely et al., 1999). For more information, see Private Land and Outdoor Recreation in the United States.

Private providers of outdoor recreation opportunities can be segregated into several classes: private landowners, large destination experience providers, private utility companies, NGOs, and private camps.

Private provider: private land owners

This category includes private holdings where recreation use is generally restricted. Users outside those restrictions include the following: 1) family and friends; 2) holdings leased to groups for exclusive use; and 3) a limited number of holdings available to anyone. Information on these types of private uses (except for leased uses) is summarized by the National Private Landowner Survey (NPLOS). The NPLOS is the most comprehensive research program for collecting data on the supply of private, non-industrial lands. The NPLOS is conducted every 10 years and was last done in 1995-1996. The NPLOS collects information on the amount of land available for various uses, as well as different landowner's policies for recreational users. The objective of NPLOS was to survey a representative national sample of owners of

rural, private tracts of at least 10 acres. For more information, see Private Land and Outdoor Recreation in the United States.

Results of the NPLOS survey were summarized by regional areas, and while they are relevant to rural areas, they are not specific to forest and rangeland areas. Information on California was in the Pacific Coast region data that includes California, Oregon, and Washington. Future FRAP recreation analysis will include survey results specific to California's forest and rangeland.

Many survey questions were asked of private landowner participants. Below are many key findings from the NPLOS survey regarding private landowners' attitudes or actions affecting recreation used (Teasley et al., 1999).

Forty-six percent of landowners provide access to recreation for individuals outside their family.

- Landowners posted signs "to restrict access." Nearly 47 percent of survey respondents in the Pacific Coast region stated that they post access restrictions, compared to 41 percent nationwide. Landowners' leading reasons for posting were: 1) to keep out people they did not know; 2) keep out people who did not have permission to use the land; and 3) to prevent damage to property or livestock.
- Owners experienced problems with the use of their land by outside individuals. These problems may be why many landowners post restricted access signs on their land. Landowners listed their leading problems associated with outsiders' use as the following: 1) garbage dumping (43 percent); 2) damaged fences and gates (21 percent); 3) illegal hunting and fishing (19 percent); and 4) vandalism (17 percent). All other reported problems comprised less than 10 percent of problems.
- Private land is often closed to recreation. In fact, 31 percent of the Pacific Coast region respondents have their land closed to recreation. This is the highest percentage of all regions and compares to 29 percent nationally.
- Landowners privately use their land for recreation. In fact, 65 percent of private landowners use their land for recreational purposes.
- Landowners permit access for recreation by persons outside their families. Approximately, 46 percent of landowners provide access for recreation for people outside their family. However, only 11 percent of those who are permitted are strangers with no personal connection to the landowner.
- Landowners reported that nearly 600 people per year were allowed to use their land for recreation, in the Pacific Region. The major activities during these visits included hiking, small game hunting, camping, photography, and picnicking. The primary reason for allowing access was to maintain goodwill with neighbors and others. The vast majority of landowners (85 to 88 percent) stated that use had stayed the same in the last five years and that they expected no change over the next five years.
- Use rates on a per acre basis are comparable to those for non-metropolitan National forests at about one RVD per acre.

Findings on economic impact of tourism, travel, and recreation economic effects

Recreation employment

Employment in private business involving recreation and tourism is spread among lodging, restaurants, retail, and firms supplying recreation services such as ski resorts, rafting, sports equipment suppliers, and guide services (Stewart, 1996). No direct estimate of employment is available that specifically tallies outdoor recreation employment. However, two estimate are summarized here that would include outdoor recreation.

Dean Runyan Associates has estimated travel-related employment that includes the widest possible inclusion of employment concerning tourism and recreation. It includes both leisure and business employment for retail and service firms including lodging, restaurants, retail stores, gasoline service stations, transportation, and other types of business that sell their products and services to travelers. This estimate shows that in 1999 over 695,000 jobs in California were related to leisure and business travel spending, a 21 percent increase since 1992 (Dean Runyan Associates, 2000a).

A more specific estimate of recreation employment is found by summarizing Standard Industrial Code 79 (recreation employment). The classification covers a wider variety of recreational activities far beyond those relevant to outdoor recreation. Both indoor and outdoor recreation is included. As such, this is a broad indicator of trends in outdoor recreation employment. Beginning in 1998, the Standard Industrial Codes have been replaced with a system known as the North American Industry Classification System that reports more detail regarding recreation sub-groups.

California's recreation employment generated by travel spending increased 22 percent between 1992 and 1998. All forest and rangeland bioregions saw increases except for the Klamath/North Coast. With a 35 percent increase between 1992 and 1998, the Sierra bioregion had the largest recreation employment increase among the forest and rangeland bioregions. In 1998, the Sierra bioregion employed the most recreation employees among the forest and rangeland bioregions (Dean Runyan Associates, 2000a) (Table 21).

Table 21. Recreation* employment generated by travel spending by selected bioregions and statewide, 1992-1998 (number of jobs)

Region	1992	1993	1994	1995	1996	1997	1998	Percent change 1992-1998
Bay Area/Delta	15,900	17,440	18,310	19,240	19,830	20,560	21,210	33
Central Coast	5,970	6,330	6,250	6,160	6,440	6,770	6,850	15
Klamath/North Coast	3,580	3,620	3,720	3,840	3,710	3,520	3,430	-4
Modoc	280	290	290	290	300	290	290	4
Sierra	6,520	6,800	7,440	8,480	8,600	8,640	8,810	35
Statewide	82,030	86,470	91,890	94,630	95,640	98,470	100,380	22

Refers to SIC code 79 (Amusement and Recreation Services)

Source: Dean Runyan Associates, 2000a

Travel expenditures

The multi-billion travel industry in California is a vital part of the State and local economies. Visitors traveling in California generate valuable business sales, payroll employment, and tax receipts to State and local jurisdictions. The industry is primarily represented by retail and service firms including lodging, restaurants, retail stores, gasoline services stations, and other types of business that sell their products and services to travelers (Dean Runyan Associates, 2000a). Information shown below represents travel spending for overnight and or trips greater than 50 miles from home. As such, travel spending represents a wider estimate of economic impact than just the effects from outdoor recreation.

Travel spending has increased 36 percent between 1992 and 1998. With the exception of the Central Coast, all forest and rangeland bioregions had larger travel spending increases than the State average. The Sierra region had a 45 percent increase in travel spending between 1992 and 1998 to lead all forest and rangeland bioregions. Generating just over 4.8 million dollars in 1998, the Central Coast bioregion led all forest and rangeland bioregions in travel spending. Travel spending in the Modoc bioregion was significantly lower than all other bioregions, making up only 0.2 percent of total travel spending in California (Dean Runyan Associates, 2000a) (Table 22).

Table 22. Travel spending and percentage change by selected bioregions and statewide, 1992-1998 (million constant dollars)

County-based bioregion	1992	1993	1994	1995	1996	1997	1998	Percent change 1992-1998
Bay Area/Delta	12,005	12,556	13,107	13,819	15,052	16,640	17,779	48
Central Coast	3,714	3,873	3,981	4,021	4,338	4,756	4,873	31
Klamath/North Coast	986	1,055	1,150	1,224	1,274	1,331	1,373	39
Modoc	75	81	88	92	99	103	104	39
Sierra	2,457	2,662	2,852	3,068	3,113	3,356	3,567	45
Statewide	47,543	49,014	50,803	52,548	55,961	61,301	64,424	36

Note: total travel spending includes destination spending, airfares, and travel arrangements.

Source: Dean Runyan Associates, 2000a

Camping expenditures

California's total expenditures by overnight campers increased 34 percent between 1992 and 1999. In 1999, the forest and rangeland bioregions comprised 52 percent of total campsites in California, yet they only garnered 35 percent of total overnight camping expenditures in California. Overnight camping expenditures have risen slower than the State average within all the forest and rangeland bioregions. The Klamath/North Coast bioregion, which holds the second highest inventory of campsites, had a 10 percent expenditure increase. In 1999, The Klamath/North Coast had one of the lowest overnight camping expenditure increases within California. The Sierra region had the highest inventory of campsites and had the third lowest overnight expenditure increase at 20 percent within California in 1999 (Dean Runyan Associates, 2000b) (Table 23).

Table 23. Expenditures of overnight campers private and public campgrounds by selected bioregions* and statewide (million constant dollars), 1992-1999

Region	1992	1993	1994	1995	1996	1997	1998	1999	Percent change 1992-1999
Bay/Delta									
Private	99	109	114	118	112	140	131	158	60
Public	26	27	27	28	29	29	28	29	10
Total	125	136	141	146	141	168	159	187	49
Central Coast									
Private	135	133	136	138	154	165	158	179	32
Public	80	82	83	85	88	86	79	88	10
Total	215	215	219	222	241	251	237	267	24
Klamath/North Coast									
Private	137	136	136	133	148	164	136	153	12
Public	47	48	49	50	51	50	44	49	4
Total	184	184	184	183	199	214	180	202	10
Modoc									
Private	78	77	81	82	97	100	122	107	37
Public	33	34	35	35	36	35	34	37	10
Total	111	111	115	117	133	135	156	143	29
Sierra									
Private	229	229	230	229	275	314	262	281	23
Public	121	124	126	128	132	129	128	139	15
Total	350	353	356	357	407	442	390	420	20
Statewide									
Private	1,752	1,795	1,929	1,945	2,221	2,313	2,297	2,472	41
Public	464	475	482	491	507	485	457	498	7
Total	2,216	2,269	2,411	2,437	2,728	3,098	2,755	2,971	34

Note: Includes spending on campground fees, groceries, restaurants, recreation, transportation, and recreation in vicinity of campsite. Does not include costs of travel to campsite.

Dean Runyan Associate regions were allocated into CDF bioregions and are as follows: Bay/Delta includes San Francisco Bay Area region, Klamath/North Coast includes North Coast region, Modoc includes Shasta-Cascade region, Sierra includes Gold Country and High Sierra regions.

****Economic impacts are analyzed on an annual basis and are subject to revision.***

Source: Dean Runyan Associates, 2000b

Economic impacts from hunting, angling, and wildlife viewing

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation reports results from interviews with State residents about fishing, hunting, and wildlife viewing for residents over 16 years old. The survey has been conducted since 1955 in cooperation with the U.S. Census Bureau, although only the 1991 and 1996 surveys are comparable. While the information is specific to recreational and not commercial users, it is not specific to forest and rangeland areas and likely includes other areas such as ocean fishing and valley wildlife refuge areas. For more information, see the 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

The latest survey found that over 7.1 million people participated in these activities with nearly six million of them involved with wildlife watching. In terms of total expenditure, fishing and wildlife watching are the leading activities at $3.3 and $2.3 billion respectively (U.S. Fish and Wildlife Service (FWS) and U.S. Census Bureau, 1998).

Trend information on the continuing participation in these activities is mixed. The number of participants remained relatively stable during the 1991 to 1996 period and number of days spent engaged

in the activity is up sharply. However, licenses issued for hunting and fishing activities continue to decline by three to four percent per year.

Fishing economic impacts

California fishing expenditures reached 3.3 billion dollars in 1996, increasing 85 percent since 1991. Rising from $733 million to $1.8 billion, equipment and other expenditures increased 155 percent between 1991 and 1996. The number of anglers in California increased two percent during the same time period 1991 and 1996. However, total fishing days have increased 54 percent in that time span (FWS, 1993; FWS and U.S. Census Bureau, 1998). This suggests that California anglers are spending more time fishing (Table 24).

Table 24. Resident and nonresident fishing impacts in California, 1991 and 1996

Economic indicators	1991	1996	Percent change 1991-1996
Number of anglers	2,677,000	2,722,000	2
Days of fishing	23,994,000	36,914,000	54
Average days per angler	9	14	51
Trip-related expenditures	1,061,958,000	1,454,324,000	37
Equipment and other expenditures	733,992,000	1,870,035,000	155
Total expenditures	1,795,949,000	3,324,360,000	85
Average trip expenditure per day	44	39	-11

Source: FWS, 1993; FWS and U.S. Census Bureau, 1998

California sold just over 1.2 million sport-fishing licenses in 2000. Between 1990 and 2000, California sport-fishing license sales have declined 16 percent. All California bioregions experienced declining sales of sport-fishing licenses between 1990 and 2000. Sales of sport-fishing licenses declined 29 percent in the Bay/Delta and Klamath/North Coast bioregions to lead all bioregions in California. Central Coast sport-fishing license sales declined two percent between 1990 and 2000, marking the smallest decline among California's bioregions (DFG, 2001a) (Table 25).

Table 25. Resident annual sport-fishing licenses sold by selected bioregions and statewide, 1990 and 2000

Bioregion	1990	2000	Percent change 1990-2000
Bay Area/Delta	286,333	201,199	-30
Central Coast	70,569	69,121	-2
Klamath/North Coast	65,469	46,104	-30
Modoc	9,027	8,424	-7
Sierra	144,997	124,296	-14
Statewide	1,497,290	1,265,039	-16

Source: DFG, 2001a

Hunting economic impacts

In 1996, hunting expenditures in California generated $854 million, marking an increase of 33 percent since 1991. Trip-related expenditures have risen 55 percent between 1991 and 1996 from $178 million to $277 million. Between 1991 and 1996, the number of hunters in California has only risen 16

percent. However, hunting days have increased 43 percent between 1991 and 1996. This indicates the average hunter is spending more time hunting (FWS, 1993), (FWS and U.S. Census Bureau, 1998) (Table 26).

Table 26. Resident and nonresident hunting impacts in California, 1991 and 1996

Economic indicators	1991	1996	Percent change 1991-1996
Number of hunters	446,000	515,000	16
Days of hunting	5,211,000	7,452,000	43
Average days per hunter	12	14	24
Trip-related expenditures	178,786,000	277,060,000	55
Equipment and other expenditures	464,364,000	577,899,000	24
Total expenditures	643,150,000	854,958,000	33
Average trip expenditure per day	34	37	8

Source: FWS, 1993; FWS and U.S. Census Bureau, 1998

California hunting license sales have declined 23 percent between 1990 and 2000. Hunting license sales have declined much the same as sport fishing licenses. The number of licenses declined 15 percent in the Modoc bioregion between 1990 and 2000, marking the smallest decline among the forest and rangeland bioregions. The Modoc, Klamath/North Coast, Central Coast, and San Joaquin Valley were the only bioregions to experience hunting license declines greater than the State average between 1990 and 2000 (DFG, 2001a) (Table 27).

Table 27. Resident annual hunting licenses sold by selected bioregions and statewide, 1990 and 2000

Bioregion	1990	2000	Percent change 1990-2000
Bay Area/Delta	58,224	38,740	-34
Central Coast	19,484	15,181	-22
Klamath/North Coast	20,476	16,236	-21
Modoc	3,805	3,251	-15
Sierra	20,100	13,783	-31
Statewide	359,339	277,431	-23

Source: DFG, 2001a

Wildlife viewing economic impacts

California had 5.9 million wildlife-viewing participants in 1996. Participation in wildlife viewing activities decreased eight percent between 1991 and 1996. At the same time, expenditures dropped from $2.6 to $2.4 billion between 1991 and 1996 (FWS, 1993), (FWS and U.S. Census Bureau, 1998) (Table 28).

Table 28. Resident and nonresident "watchable" wildlife impacts in California, 1991 and 1996

Economic indicators	1991	1996	Percent change 1991-1996
Total number of participants	6,480,000	5,959,000	-8
Days of wildlife viewing (nonresidential)	N/A	24,578,000	N/A
Average days per viewer (nonresidential)	N/A	4	N/A
Trip-Related Expenditures	1,157,836,000	1,084,506,000	-6
Equipment and other expenditures	1,447,357,000	1,312,303,000	-9
Total expenditures	2,605,192,000	2,396,809,000	-8
Average trip expenditure per day (nonresidential)	N/A	44	N/A

N/A – not available

Source: FWS, 1993; FWS and U.S. Census Bureau, 1998

Challenge and Issues

The challenges California will face include: 1) how much intensive recreational use areas can sustain without negative environmental impacts; 2) how to finance quality recreational experiences for a wide range of users; 3) how to manage often competing uses in the same location; and 4) how to expand the availability of opportunities to meet an expanding metropolitan-based population.

Environmental impacts from recreational use

Public land managers, environmental interest groups, and recreation users all cite concern over how natural resources are used in this country. Greater numbers of users, more use of mechanized equipment, and easier access to backcountry areas combine to impact resources, especially in fragile ecosystems. Resource impacts are likely to intensify in the more popular places and spread to others as use pressures increase (English, et al., 1999). For more information, see the Assessment document Implications of This Assessment.

Carrying capacity is an area's ability to provide satisfactional recreation use that does not impact the environment to the point of irreversible damage. Carrying capacity is strained if heavy resource damage occurs, management standards cannot be met, or user satisfaction can no longer be provided. This situation is often related to developed and road-based recreation opportunities. In the next 40 years, as demand increases, there will likely be more competition for recreation uses and conflicts between recreation users. People wanting to use developed and dispersed recreation will exceed supply in various locations throughout the State. In particular, areas close to urban population centers and popular attractions will experience stress due to increased competition.

In situations where carrying capacity is exceeded, administrative controls would be implemented. These controls include entry stations, closures, increased compliance and law enforcement, increased use of reservations, fees, permit systems, rest and rotation of recreation areas and facilities, and more dependency on the private sector.

Specific concerns include the following:

- Day use pressures on National Parks due to visitor desire for shortened visits (DPR, 1994);

- Restriction of motorized vehicles in unroaded areas per use policy changes;
- Forest and rangeland counties' population growth causing use compatibility problems in National Parks; effects from gateway community development, air pollution, and parking continue to plague park managers; and
- Exotic species eradication; biological diversity in natural habitats of parks are threatened by the reoccurring resource problems such as the spread of yellow star thistle (native to Asia) and in some coastal wildands, wild pig proliferation (Midpeninsula Regional Open Space District reroute management plan); other examples of issues over exotics species include the eradication of non-native fish in Lake Davis, Plumas County.

Facility maintenance and patrol staffing

Future challenges include increasing funding for recreational facilities, maintenance, personnel, and interpretation services to meet the increasing demand. For example, BLM reports that between 1986 and 1993 use of BLM land has increased 118 percent while the number of patrol rangers grew only 76 percent. High use areas require staffing to ensure public health safety, maintain facilities, remove garbage, and ensure that desired use levels are not exceeded.

Several producers reported deferred maintenance backlogs in campground facilities. In 1992, for example, the USFS reported over $180 million in deferred maintenance needs.

Acquisitions for local park expansion

Local providers continually face challenges to meet the needs of an expanding community and maintain parks according to their values. Several challenges have been identified.

- Purchasing new holdings as land prices escalate from urbanization pressures;
- Maintaining quality of services in an expanding use base;
- Connecting future park expansion to the existing system when faced with declining land base being diverted to urbanization; and
- Expanding recreational opportunities to serve an ethnically diverse population.

Conclusion

Summarizing the results of the recreation use, supply, and activity preferences provides insight to the future needs of wildland recreation in California. Several key conclusion include the following:

- **Participation rates for many activities associated with forests and rangelands are growing. With growing population, demand for all wildland recreation will increase in absolute numbers, even though some activities may show stable or declining participation rates**.

  As California's diverse populace grows, demand for recreational experiences will continue to increase. Wildland outdoor recreation areas located near major urban centers (South Coast, Bay/Delta, and Sacramento bioregions) continue to see high volumes of visitors with a limited supply of outdoor recreation areas. With supply limitations of outdoor recreation areas located in

or around urban areas, it will become increasingly important to use existing areas and services to their fullest potentials including both the public and private sectors. Recognizing and responding to user preferences can help address increasing demands for competing recreational uses. In areas located further away from urban centers (North Coast, Modoc, and to a lesser extent Sierra and Central Coast bioregions), supply typically exceeds demand. As California grows these areas will see increased use and still require careful planning to meet recreational need.

- **Recreation use near metropolitan areas is increasing and many sites are intensely used. Accommodating quality experiences for users while protecting the natural resources will be increasingly challenging.**

  Intensive use is also a problem for maintaining environmental quality in many areas. As wildland outdoor recreation increases, especially near urban areas, site administrators will need to establish carrying capacity levels that balance use with environmental quality. This is a challenge for many areas where demand outweighs supply. Many areas will continue to be heavily used and choices will have to be made between increasing the resilience to intense use and decreasing use to promote more natural habitat characteristics.

- **More user conflicts are likely to result as the scope of activities expands and user group demands overlap.**

  Competing demands for trails among diverse users such as mountain bikes and hikers in the summer or snowmobiles and cross country skiers in the winter may require special roles when there are large numbers of both groups. Mountain bike use of remote sections of the Tahoe Rim trail on U.S. Forest Service land, for example, is allowed only on even-numbered days to guarantee hikers a certain number of hiker-only days.

- **Recreational providers must adapt their facilities to be relevant to the changing user profile.**

  Wildland outdoor recreation use is shifting from multi-day activities such as camping, backpacking, hunting, and fishing trips to a dominance of day use activities such as bicycling, walking, and hiking. This is especially seen in areas located near urban areas where visitation is high but length of stay is low. This use transition is especially important for site administrators to identify as they try to provide recreational opportunities that better suit visitor needs. In many cases, private sector providers of specialized recreational services (guides, rentals, premium services, specialized equipment, etc.) will be a better match to the investment and management requirements than an expansion of public providers.

- **Water related recreational sites will continue to have the highest intensities of use and risks of loss of ecological values.**

  Beach vegetation and riparian zones often contain numerous plants that are sensitive to trampling. Defining trails, no access areas, and temporary closures for restoration often need to be designed and implemented to ensure sustainable use and ecological values.

- **Coordination between and among public agencies at all levels of government, nonprofit land trusts, and private forest and rangeland operators will be needed in the future.**

  With increased use comes increased costs. Maintenance and safety concerns continue to be challenging problems in many high use areas. This is mainly due to inadequate funding levels by government bodies. Site administrators are continually challenged to provide recreational opportunities to a growing and diverse visitor base while still being able to provide adequate maintenance and safety.

- **Coordination should include strategically acquiring land and easements and providing opportunities in response to recreation demands.**

Glossary

BLM: U.S. Bureau of Land Management.

BOR: U.S. Bureau of Reclamation.

CBC: California Biodiversity Council.

CDF: California Department of Forestry and Fire Protection.

DFG: California Department of Fish and Game.

DPR: California Department of Parks and Recreation.

FRAP: Fire and Resource Assessment Program.

FWS: U.S. Fish and Wildlife Service.

NGO: Non-governmental organization

NPS: National Park Service.

NPLOS: National Private Landowner Survey

NSRE: National Survey on Recreation and the Environment

NVUM: National Visitor Use Monitoring program.

NWR: National Wildlife Refuge.

recreation visitor day: One recreation visitor day equals 12 hours of visitation.

RIM: Recreation Information Management.

RPD: Recreation and or regional park districts.

RVD: see recreation visitor day.

USACE: U.S. Army Corps of Engineers.

USFS: U.S. Forest Service.

Wildland outdoor recreation: All outdoor recreation that takes place on California's forest and rangelands.

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